REMARKS

Claims 1-19 are pending in this application.

I. Priority

Applicants respectfully request that the Examiner acknowledge the Claim for Priority in the next Office Action.

II. Claim Rejections

The Office Action rejects claims 1-19 under 35 U.S.C. §103(a) over U.S. Patent No. 6,355,198 to Kim et al. (Kim) in view of either Japanese Patent Publication No. 2002-365429 to Saiki et al. (Saiki) or Japanese Patent Publication No. 2002-146066 to Niino et al. (Niino). Applicants respectfully traverse the rejections.

Kim discloses a method of forming waveguides by micromolding. In the embodiment shown in Fig. 1, article 20 (also called applicator 20), having indentations 24 which have rectangular cross-sections, is placed on substrate 30 forming channels 32. Fluid precursor 36 is placed at the openings of channels 32 and allowed to flow, or otherwise is forced into, channels 32. Thereafter, the fluid precursor 36 can be polymerized by heat (col. 11, lines 38-41), photopolymerization (col. 11, lines 42-44), or other means to produce waveguides 38 having rectangular cross-sections (Fig. 1). In the embodiment of Fig. 15, described by the sections cited by the Office Action (col. 33, line 13 *et seq.*), indentations 24 of article/applicator 20 are filled by fluid precursor 36, the excess is scraped off, and thereafter article 20 is placed on substrate 30. Fluid precursor 36 can be made stable either before or after article/applicator 20 is removed (Fig. 15; col. 32, line 58 to col. 34, line 31).

Thus, Kim fails to disclose (1) forming a template having a concave portion; and (2) applying an ozone treatment or irradiating light having a wavelength of 300 nm or less to the surface of either the template or the substrate before mating the template and substrate.

The Office Action admits that Kim fails to disclose step (2) (point (2) above) and alleges that Saiki and Niino each cure this deficiency. The Office Action alleges that it would have been obvious to combine the disclosure of Kim with those of Saiki or Niino to improve the hydrophilicity of a polymeric surface "as noted by Applicant" (page 2, last two lines).

Niino discloses a method of modifying the surface of fluoric-based polymer mold goods using a vacuum ultraviolet laser under the presence of water or steam (paragraph [0006]).

It would not have been obvious to modify the disclosure of Kim with the process of Niino because: (1) Kim fails to disclose that substrate 30 is fluorine-based. In fact, Kim teaches away from such a material, stating that suitable materials for substrate 30 include gold, glass, and silicon (col. 35, lines 31-34); (2) Neither Kim nor Niino discloses that the disclosure of Kim has a problem with hydrophilicity regarding the adhesion of fluid precursor 36 to substrate 30. Indeed, Kim recognizes hydrophilic problems in other areas, such as regarding the attachment of a cladding layer 170 to waveguides 38 once the waveguides 38 have been formed (see paragraph beginning at col. 34, line 33). Thus, the absence of the disclosure of a hydrophilic problem regarding the adhesion of fluid precursor 36 to substrate 30 tends to imply that there is no basis to allege an associated hydrophilic problem; and (3) further, the modification of the disclosure of Kim with that of Niino is improper because it uses impermissible hindsight. The Office Action states that it would have been obvious to combine the disclosure of Niino with that of Kim to improve the hydrophilicity of a polymeric surface "as noted by Applicant" (page 2). Thus, the Office Action has impermissibly relied on Applicants' disclosure to provide the motivation to combine.

Additionally, Niino is directed to a method of increasing hydrophilicity of a surface under a process that requires water or steam, whereas the claimed subject matter is a process which benefits from the presence of ozone or air from which ozone is produced. Thus, even

if the disclosure of Niino is combined with that of Kim, the resultant combination would not correspond to the claimed subject matter.

Saiki discloses production of a polarizer 1 protected by a transparent protection film 3 in which the hydrophilic nature of the surface of transparent protection film 3 is increased by ultraviolet irradiation (paragraph [0022]). The transparent protection film 3 is a triacetyl cellulose (TAC) film (paragraph [0003]). After exposure of transparent protection film 3, a glue line 2 of a polyvinyl alcohol system adhesive is applied and the transparent protection film 3 is joined to the polarizer (paragraph [0062]).

Thus, Saiki (1) is directed to increasing the hydrophilic nature of triacetyl cellulose, (2) in order to apply an adhesive (3) in order to produce a polarizer plate. In contrast, Kim is directed to forming waveguides. Thus, Kim and Saiki address divergent technologies and lack any motivation or suggestion to combine the references as asserted by the Office Action. Further, neither Kim nor Saiki discloses that the disclosure of Kim has a problem with hydrophilicity regarding the adhesion of fluid precursor 36 to substrate 30. Still further, as argued in relation to the alleged combination of the disclosures of Kim and Niino, the Office Action impermissibly uses Applicants' disclosure in alleging motivation to combine.

For the forgoing reasons, Applicants respectfully request withdrawal of the rejection.

The Office Action provisionally rejects claims 1-19 under the doctrine of obviousness-type double patenting over (i) claims 9 and 10 of copending Application No. 11/005,077 to Shimizu et al. (Shimizu '077) in view of either Saiki or Niino; (ii) claims 1-17 of copending Application No. 10/936,639 to Shimizu et al. (Shimizu '639) in view of either Saiki or Niino; (iii) claims 1-20 of copending Application No. 10/930,816 to Ohtsu et al. (Ohtsu) in view of Saiki or Niino; (iv) claims 1-20 and 23-25 of copending Application No. 10/390,685 to Akutsu et al. (Akutsu '685) in view of either Saiki or Niino;

and (v) claims 1-23 of copending Application No. 10/801,803 to Akutsu et al (Akutsu '803) in view of either Saiki or Niino. Applicants respectfully traverse the rejections.

Regarding provisional rejections (i)-(v), these rejections have not matured because the applications over which the claims are rejected have not issued as patents. When the applications issue as patents and, thus, the rejections mature, Applicants will consider and respond to the rejections.

The Office Action rejects claims 1-19 under the doctrine of obviousness-type double patenting over claims 1-18 of U.S. Patent No. 6,901,198 to Shimizu et al. (Shimizu '198) in view of either Saiki or Niino. Applicants respectfully traverse the rejection.

Shimizu '198 claims a process for producing a polymer optical waveguide having the steps of preparing a mold having concave portions; bringing a cladding substrate into contact with the mold; and filling the concave portions with a curable resin (claim 1). Shimizu '198 fails to disclose a step of applying an ozone treatment or irradiating light having a wavelength of 300 nm or less to at least one of a surface of a template or a cladding film portion as recited.

The Office Action alleges that both Saiki and Niino are separately combinable with Shimizu '198 to result in a combination which corresponds to the claimed features. Applicants respectfully submit the combination is not proper.

It would not have been obvious to modify the disclosure of Shimizu '198 with the process of Niino because: (1) Shimizu '198 fails to disclose that the claimed mold is fluorine-based. In fact, Shimizu '198 teaches away from such a material, stating that a suitable material is polydimethylsiloxone (PDMS) (col. 3, lines 19-20); and (2) Neither Shimizu '198 nor Niino discloses that Shimizu '198 has a problem with hydrophilicity regarding the curable resin and the mold.

Additionally, Niino is directed to a method of increasing hydrophilicity of a surface under a process that requires water or steam, whereas the claimed subject matter is a process which benefits from the presence of ozone or air from which ozone is produced. Thus, even were Niino to be combined with Kim, the resultant combination would not correspond to the claimed subject matter.

Saiki (1) is directed to increasing the hydrophilic nature of triacetyl cellulose, (2) in order to apply an adhesive (3) in order to produce a polarizer plate. In contrast, the claims of Shimizu '198 are directed to forming waveguides. Thus, Shimizu '198 and Saiki address divergent technologies and lack any motivation or suggestion to combine the references as asserted by the Office Action. Further, neither Shimizu '198 nor Saiki discloses that Shimizu '198 has a problem with hydrophilicity regarding the curable resin to the mold.

For the foregoing reasons, Applicants respectfully request withdrawal of the rejection.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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